CHINA AND MULTI-DOMAIN STRATEGIC STABILITY

Annotated Bibliography

October 7-8, 2021

Center for Global Security Research
LAWRENCE LIVERMORE NATIONAL LABORATORY

Annotated Bibliography

CHINA AND MULTI-DOMAIN STRATEGIC STABILITY

Center for Global Security Research
Livermore, California, October 7-8, 2021

Prepared By: Lauren J. Borja

Key Questions:

- What is China's approach to multi-domain strategic stability?
- What can and should the U.S. and its allies do to promote their interests in strategic stability?

Panel Topics:

1. China's Approach to Multi-Domain Complexity
2. China's Approach to Multi-Domain Strategic Stability
3. A Cooperative Risk Management Approach?
4. Risk Mitigation in the Absence of Cooperative Approaches

Panel 1: China's Approach to Multi-Domain Complexity

- What roles do cyber space and outer space have in China's military strategy?
- What steps has it taken to integrate multi-domain operations into its plans and forces?
- How does it understand its competitive position vis-à-vis the US?

Brandon Williams et al., "U.S. and Allied Cyber Security Cooperation in the Indo-Pacific" (Livermore, CA: Center for Global Security Research, April 30, 2021), https://cgsr.llnl.gov/content/assets/docs/US_and_Allied_Cyber_Security_Cooperation_in_the_Indo-Pacific.pdf

> This CGSR workshop brought together individuals from the U.S. political, military, and private sectors, as well as individuals from similar agencies in Europe and the Indo-Pacific, to discuss the Chinese cybersecurity threat in the Indo-Pacific. The U.S. and U.S. alliances remain ahead of the Chinese cyber threat, but its growth presents concern in the region. China describes itself as a target of U.S. cyber aggression and has focused on promoting indigenous Chinese digital products both nationally and internationally to combat the threat. Military cyber efforts have been gathered under the Strategic Support Forces (SSF) to centralize international cyber surveillance efforts. China has also been vocal on the international cyber norms debate, especially at the United Nationals (UN) cyberspace governance forums. The U.S. can converge allies in the Indo-Pacific against China with its resources and bureaucratic strength; however, work must be done to establish common goals, responses, doctrines and language among partners. The private sector and diplomacy should also be used to strengthen cybersecurity in the region.

Elsa B. Kania and John Costello, "Seizing the Commanding Heights: The PLA Strategic Support Force in Chinese Military Power," Journal of Strategic Studies 44, no. 2 (February 23, 2021): 218–64, https://doi.org/10.1080/01402390.2020.1747444

> This article discusses the role of the recently formed People's Liberation Army Strategic Support Force (PLASSF) as part of China's strategy to modernize its military capabilities by analyzing Chinese and English language sources—military documents, news articles, and think tank publications. Similar to the U.S.'s CYBERCOM and STRATCOM, PLASSF addresses China's goals in space (under its Space Systems Department) and cyberspace (under its Network Systems Department), allowing it to wage 'informatized' warfare by integrating intelligence and information or joint operations. Space systems department handles "space launch and control centers; tracking, and control; and space-based intelligence, surveillance and reconnaissance (ISR)", while the network systems department handles "cyber, electronic and psychological warfare". Based on the overlap in mission requirements, it is likely that the PLASSF has a role in missile defense and counterspace systems, although this is hard to directly confirm.

Mark Stokes et al., "China's Space and Counterspace Capabilities and Activities" (U.S.-China Economic and Security Review Commission, March 30, 2020), https://www.uscc.gov/files/001393

This report, prepared at the request of the U.S.-China Economic and Security Review Commission, discusses Chinese activities and makes recommendations to U.S. Congress to counter China's activities in space and counterspace. Its authors analyze Chinese language military and news sources, some of which have been translated and excerpted into the report. It describes the PLASSF's role as a military and research organization allows it to integrate new capabilities. The report also looks at the Chinese industrial base for space technology, such as launch vehicles, satellites, and counterspace research. It discusses connections between Chinese space research organizations and international research. Ultimately, the authors advocate for U.S. Congress increasing scrutiny and control over the potential transfer of U.S. space technology by reviewing existing activities, increasing education of Chinese space activities, and monitoring doctoral-level Chinese students in U.S. education programs related to space.

Michael S. Chase and Chan, "China's Evolving Approach to 'Integrated Strategic Deterrence'" (Santa Monica, CA: RAND, 2016), https://www.rand.org/pubs/research_reports/RR1366.html.

Using Chinese military writings, these authors describe the evolution in Chinese Strategic deterrence in the areas of nuclear, conventional, space, and cyber. They also describe the subsequent changes to the PLA forces as a result of this strategic shift. In addition to the four areas of deterrence mentioned above, nonmilitary dimensions such as diplomacy, economics, and scientific/technological strength are also considered relevant to strategic deterrence and stability. To meet these strategic goals, China has expanded its nuclear forces, with more nuclear-armed intercontinental ballistic missiles (ICBMs) and nuclear-powered ballistic missile submarines (SSBNs), and has built up additional conventional air, naval and missile forces. The United States, along with U.S. allies in the Asia-Pacific, should engage China in dialogue around strategic concepts. Amongst allies, the United States should look to understand, build, and operationalize multidomain response options.

"Military and Security Developments Involving the People's Republic of China, 2020, Annual Report to Congress" (Washington, D.C.: Office of the Secretary of Defense, August 21, 2020), https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF

This report is the latest version of an annual report of the U.S. DoD to Congress on Chinese military activities. It provides a summary of changes in Chinese forces, policy, and military structure, including the People's Liberation Army's (PLA's) global power projection and partnerships. China is in the process of updating the PLA with new policies to create a "world-class" military by the centennial of the founding of Chinese Communist Party (CCP) in 2049 through the reorganization of military commands and changes to its nuclear forces. Importantly, several defense systems have achieved or exceeded parity with the U.S. systems, such as PLA shipbuilding, which makes the PLA Navy the largest navy in the world with 350 ships compared to U.S. Navy's 293; land-based conventional ballistic and cruise missiles; and integrated air defense systems, which comprise indigenously Chinese built and Russian systems. China continues to expand its nuclear forces, both by increasing the number of its warheads and developing additional delivery

vehicles, such as the nuclear capable air-launched ballistic missile and more ground-based silos. Other developments suggest that China may move to a peacetime "launch-on-warning" posture for its silo-based nuclear forces.

Phillip C. Saunders, "A 'World-Class' Military: Assessing China's Global Military Ambitions," § U.S.-China Economic and Security Review Commission (2019), https://www.uscc.gov/sites/default/files/Saunders_USCC%20Testimony_FINAL.pdf

This testimony discusses implications of Chinese spending for planned military modernization, including official budget and "off budget" expenditures using English language sources and documents released by the Chinese government. The author notes that that there may be large uncertainties with open-source materials presented; more details may be available at the classified level. In the future, slower Chinese GDP growth may hinder current defense budget and procurement, which may limit ability to invest in new technology. This may lead to competition between the services for various resources and missions; one such area could be competition for nuclear missions between the PLA Air Force and PLA Navy, if the Navy's submarine-launched ballistic missile-equipped submarines become operational. The Chinese military and defense industrial base have also increased advertising and even public lobbying efforts in support of their weapon systems. At the moment, China allocates more of its budget domestically, but this could change if the two decide to move from competition to conflict.

Panel 2: China's Approach to Multi-Domain Strategic Stability

- How do China's experts characterize the risks of instability associated with competition for military benefit in the new domains and with their exploitation in crisis and war?
- What policies and strategies has China elaborated to manage and reduce risks?
- How should we assess these? Are they serious and substantive or largely polemical?

Fiona S. Cunningham, "Cooperation under Asymmetry? The Future of US-China Nuclear Relations," *The Washington Quarterly* 44, no. 2 (April 3, 2021): 159–80, https://doi.org/10.1080/0163660X.2021.1934253

The author lays out a 3 C's approach to bringing China and the U.S. together to reduce nuclear risks: combine nuclear and non-nuclear issues; compartmentalize aspects of the U.S.-China relationship from other nuclear relationships, such as U.S.-Russia; and compromise on giving each other certain bargaining advantages, for example offering to reduce U.S. missile defenses in Asia if China agrees not to put multiple independent re-entry vehicles (MIRVs) on new ballistic missiles. The journal article identifies asymmetries in alliances, geography, conventional military power, nuclear posture, non-nuclear weapons strategic posture that complicate cooperation. According to the author, the U.S. and China should avoid using Cold War logic around these asymmetries, as this reasoning increases the likelihood of nuclear risk in terms of crisis and arms race stability. It might be possible for the two countries to unite around their mutual interest for avoiding arms racing and preventing the use of nuclear weapons.

Lora Saalman and Petr Topychkanov, "South Asia's Nuclear Challenges: Interlocking Views from India, Pakistan, China, Russia and the United States" (SIPRI, April 2021), https://www.sipri.org/publications/2021/other-publications/south-asias-nuclear-challenges-interlocking-views-india-pakistan-china-russia-and-united-states

> This report is based on interviews on nuclear weapons issues in South Asia with many military, nuclear, political and regional experts from China, India, Pakistan, Russia and the United States. For the China-U.S. relationship, interviewees were more likely to find actions taken by the other country more destabilizing. For example, Chinese experts cited U.S. weapons sales and U.S. Indo-Pacific Strategy destabilizing, while U.S. experts were troubled by conventional and nuclear weapons activity and economic developments between China and Pakistan. The interviews also revealed that experts in India and China assume that similar postures between the two countries is stabilizing in the short term but that their postures could also lead to misunderstanding and confused signaling in the future. The report recommends more comprehensive engagement at the bilateral, trilateral, and multilateral level for discussion of nuclear issues in South Asia to increase stability in the region.

Nathan Beauchamp-Mustafaga et al., "Deciphering Chinese Deterrence Signaling in the New Era: An Analytic Framework and Seven Case Studies" (RAND Corporation, May 27, 2021), https://www.rand.org/pubs/research_reports/RRA1074-1.html

> In this report, RAND analysts present a framework for understanding Chinese deterrence signaling, drawing on seven (three peacetime and four crisis) case studies. Beijing is using bolder and more frequent signaling for larger objectives, complicating the task of identifying important signals from the noise. Those looking to understand deterrence signals from China should use the following five principles of Chinese military deterrence signaling: understanding the strategic context of a signal; identify key content; understand the intended audience; identify the origin of the signal from within the Party-state system; and use the scope to judge the willingness to use force. Additional engagement efforts for Australia are also presented.

Tong Zhao, "Conventional Long-Range Strike Weapons of US Allies and China's Concerns of Strategic Instability," The Nonproliferation Review (September 14, 2020): 1–14, https://doi.org/10.1080/10736700.2020.1795368

> This article discusses instability that could arise if U.S. allies in the Pacific acquire conventional long range precision strike weapons, either indigenously or from the United States. China views conventional as well as nuclear weapons as playing a strategic stability role in the region. U.S. allies (South Korea, Japan, Taiwan, and Australia) are largely looking to counter North Korean nuclear threat and China's rise. China, however, views these concerns as suspect. For example, China sees Japan's acquisition of conventional strike missiles as an effort to regain its status as military power rather than due to concerns with China. Furthermore, China views South Korean and Australian missiles as helping the U.S. offset China's conventional military dominance in the region.

Yao Yunzhu, "Taking Stock: The Past, Present, and Future of U.S.-China Nuclear Dialogue," in Taking Stock: U.S.-China Track 1.5 Nuclear Dialogue, ed. Brad Roberts (Livermore, CA: Lawrence Livermore National Laboratory, 2020), 7–14, https://cgsr.llnl.gov/content/assets/docs/CGSR_US-China-Paper.pdf

> This chapter discusses, from a Chinese perspective, many of the nuclear-issue focused dialogues at the Track 1, 1.5 and 2 level between China and the United States over the years, the most recent of which were terminated in 2020. The Chinese perspective is that these were "successful and fruitful…a valuable learning experience." The talks focusing on nuclear issues began in 2004, with the Bush administration, despite nuclear issues not being at the forefront in either country at the time. In 2009, during the Obama administration, much effort was put into these discussions, and they were well attended by important individuals on both sides. Chinese officials raised issues about U.S. missile defense systems, U.S. alliances in the Asia-Pacific, and emerging technologies (including Conventional Prompt Global Strike). The talks deteriorated in the Trump administration, partially because of increasingly tense relations between the two countries. The United States terminated the dialogues in 2020 because, in part, due to a lack of participation from senior Chinese officials and lack of transition from a Track 1.5 to Track 1 dialogue. These dialogues were useful at clarifying many issues for both countries, including Chinese no first use and shared interest. That being said, they did not settle differences between the two countries around U.S. extended deterrence, U.S. missile defense in Asia, and approaches to North Korean denuclearization.

Lu Yin, "Reflections on Strategic Stability," in Understanding Chinese Nuclear Thinking, ed. Li Bin and Tong Zhao (Washington, D.C.: Carnegie Endowment, 2016), 127–48, https://carnegieendowment.org/files/ChineseNuclearThinking_Final.pdf

> According to this chapter in a larger report from Chinese experts, the U.S. view of strategic stability is based on Cold War thinking on nuclear crisis and arms race stability. As a result, U.S. analysts of strategic stability focus mostly on eliminating miscalculation between two countries. The nuclear taboo prevents the use of Chinese nuclear weapons and provides stability. Furthermore, China refuses to use nuclear blackmail or threats to use nuclear weapons unless a country acquiesces to its demands, and finds the practice destabilizing. The author suggests that trade between the U.S. and China could be the basis for a stable relationship, especially as the U.S. seeks to cooperate and not compete with China. The chapter recommends that the two countries use public statements and open dialogue between officials to find agreement on strategic stability. Strategic stability is threatened by U.S. concerns over China's improving position in the international system, U.S. missile defenses, expanding U.S. nuclear forces in the Asia-Pacific.

Panel 3: A Cooperative Management Approach

- In the near term, are there real opportunities to cooperate with China to promote strategic stability in cyber space, outer space, and more broadly? If so, where?

- Looking to the longer term, what might be done now to lay the foundations for future cooperation?

"Enhancing U.S.-China Strategic Stability in an Era of Strategic Competition" (Washington, D.C.: United States Institute of Peace, April 2021), https://www.usip.org/publications/2021/04/enhancing-us-china-strategic-stability-era-strategic-competition

> This is a series of essays from U.S. and Chinese participants in a workshop on U.S.-China security. The essays present on strategic stability as a concept in both countries as well as the role of specific topics such as nuclear weapons, conventional missiles, missile defense, space, cyberspace, and artificial intelligence. The authors detail challenges to cooperation on strategic stability, including lack of trust of the other country, differences in doctrine, action-reaction dynamics in pursuing new technologies, entanglement of nuclear and conventional systems, role of third parties in the relationship, and lack of interest in cooperation. Many of the essays highlight similar points of action for the two countries: a call for both countries, and potentially the five nuclear weapon states (P5) in the Nonproliferation Treaty (NPT), to declare that a nuclear war can never be won and should never be fought; a renewal of Track 1.5 dialogues, potentially with technical experts from the United States and China that could discuss emerging technologies; new norms and transparency measures between the two countries; and engagement other states, perhaps through the UN Security Council, to strengthen global strategic stability.

"Identifying Collaborative Actions to Reduce Today's Nuclear Dangers" (Geneva: UNIDIR, September 1, 2021), https://doi.org/10.37559/WMD/21/DDAC/03

> This report identifies three challenges for many different countries to engage on, but where increased dialogue between the United States and China would be beneficial. First, the current security environment weakens the nuclear taboo; this could be addressed by states affirming that a nuclear war can never be won and identifying ways the five NPT nuclear weapon States (P5) could take specific risk reduction methods. Secondly, arms control needs to be broadened beyond the agreements between the U.S. and Russia; to do so, nuclear-armed States should observe the testing moratorium and seek the entry-into-force of the Comprehensive Test Ban Treaty and renewed collaboration between Southeast Asian countries to uphold the protocols and negative security assurances of the Treaty on the Southeast Asia Nuclear-Weapons-Free Zone. Third, States should revitalize pursuit of nuclear disarmament by: issuing a code of nuclear responsibilities the P5 will take towards nuclear restraint; discuss with all States the risks, ethics, and morality of reliance on nuclear deterrence; and strengthen public education on these issues.

Lewis A. Dunn, "The Future of the U.S.-China Nuclear-Strategic Relationship: An American Perspective," in Taking Stock: U.S.-China Track 1.5 Nuclear Dialogue, ed. Brad Roberts (Livermore, CA: Lawrence Livermore National Laboratory, 2020), 37–44, https://cgsr.llnl.gov/content/assets/docs/CGSR_US-China-Paper.pdf

In this chapter, the author describes arguments in favor of re-establishing a new Track 1.5 to reduce the likelihood of nuclear and non-nuclear conflict between China and the U.S. Four futures exist for U.S.-China strategic stability: 1) modified adversarial confrontation where unconstrained pursuit of new destabilizing technology (nuclear and non-nuclear) on both sides without dialogues to reduce misperceptions and therefore accidents and incidents; 2) regulated competition, where crisis and conflict seems unlikely due to cooperation in other areas, such as economics, potentially precipitated by an incident or accident; 3) military conflict between the two countries; and 4) restored cooperation in light of larger global issues, although separation due to COVID seems to indicate how challenging this is. A new Track 1.5 dialogue should be founded on a leadership vision to avoid confrontation, a unified purpose of slowing or reversing current trends, setting and balancing the dialogue within the broader context or other dialogues, broader scope than just nuclear, and more interesting methods of engagement, such as wargames.

Nobumasa Akiyama, "Atoms for Alliance Challenges: Japan in the Liberal International Nuclear Order," in The Crisis of Liberal Internationalism: Japan and the World Order, ed. Yoichi Funabashi and G. John Ikenberry (Washington, D.C.: Brookings Institution Press, 2020), 167–200, http://www.jstor.org/stable/10.7864/j.ctvbnm3nv.9

In this book chapter, the author describes how recent events are challenging the liberal international world order, specifically that surrounding nuclear issues. The author states that U.S. global nuclear governance is a foundation for wider U.S. leadership on the international stage. Many allies of the United States, including Japan, find that working within this order is their best option, despite its shortcomings. Challenges to the nuclear order for Japan include the Treaty on the Prohibition of Nuclear Weapons, North Korean nuclear weapons, and U.S. withdrawal from arms control agreements. The end of extended deterrence for U.S. allies, including Japan, could lead to increased nuclear hedging, although this may be more challenging after Fukushima. Despite these concerns, Japan still finds that engagement with the U.S. is still the best way to meet Japanese security concerns.

Susan Thornton, "Prospects for U.S.-China Strategic Stability and Crisis Management," Stimson Center (blog), August 2, 2021, https://www.stimson.org/2021/prospects-for-u-s-china-strategic-stability-and-crisis-management/

The author, a previous U.S. diplomat and Acting Assistant Secretary of State for East Asian & Pacific Affairs, discusses challenges to engaging the Chinese on nuclear issues and possible ways forward. She finds that the Cold War provides poor template for engaging the Chinese. During the Cold War, arms control took place during times of reduced tensions, when strategic arsenals of the Soviet Union and U.S. were at rough parity. Currently, none of these conditions are present and neither Washington nor Beijing seem interested in reducing defense spending at the moment. Furthermore, ambiguity in Chinese nuclear posture makes transparency measures more challenging. There are three possible future outcomes for the United States and China moving forward: 1) discussions on destabilizing technologies that include China; 2) discussion without China on these issues, which would further strain the U.S.-China relationship; or 3) a U.S.-China military

accident or incident. In this author's opinion, discussions are most favorable, but she notes that such discussions would require strong leadership.

Panel 4: Risk Mitigation in the Absence of Cooperative Approaches

- What can and should the US and its allies do to promote strategic stability in cyber space, outer space, and more generally in the absence of a willing Chinese partner? Diplomatically? Militarily?
- What should they NOT do?

Ashley Townshend et al., "Correcting the Course: How the Biden Administration Should Compete for Influence in the Indo-Pacific — United States Studies Centre" (Washington, D.C.: United States Studies Center, August 27, 2021), https://www.ussc.edu.au/analysis/correcting-the-course-how-the-biden-administration-should-compete-for-influence-in-the-indo-pacific

> In this report, its authors articulate needed course corrections on the incipient Biden strategy in the Pacific. The Biden administration should look to gain advantage as opposed to reinstating the status quo, compete for influence in regional institutions, and focus on near-term goals in addition to the long-term competition. This should be accomplished by: not forcing allies in the Pacific to choose based on ideology, for example, not framing as "a struggle between democracy and autocracy"; developing a trade agenda in addition to the existing infrastructure investments; and supplying the necessary technology, including military technology, for allies in the region. These approaches are necessary to maintain a policy of deterrence by denial for China.

Brad Roberts, "China's Strategic Future," in China's Strategic Arsenal: Worldview, Doctrine, and Systems, ed. James M. Smith and Paul J. Bolt (Washington, D.C.: Georgetown University Press, 2021), 241–54, https://doi.org/10.2307/j.ctv1htpdvw.8

> The author offers predictions for China's rise on the world stage, uncertainties surrounding those predictions, and the implications of those two factors for the U.S.-China relationship. While it is certain that China will grow in technological prowess, it is uncertain how China will wield that power politically or militarily. Furthermore, how other countries, such as the U.S. and U.S. allies, react to China's rise will certainly shape this trajectory. China's nuclear weapons and surrounding policies are also an unknown. China remains skeptical of the U.S. offers of cooperation, and, until recently, China has not been the only focus for U.S. military and strategic goals in the region.

Lindsey W. Ford and James Goldgeier, "Retooling America's Alliances to Manage the China Challenge," Brookings (blog), January 25, 2021, https://www.brookings.edu/research/retooling-americas-alliances-to-manage-the-china-challenge/

> The authors describe ways the U.S. global alliance network should respond to rise of China. The United States and its allies have not presented a unified front on economic and human rights issues. The United States should determine: if NATO should have a role

in the region; if new operational capabilities, such as command and control or integrated planning, are needed in Asia; and if future unity on shared interests or against threats can be reached. Europe should take a larger role in NATO to allow the U.S. to focus on Asia, especially focusing on building resilience in space and cyberspace. The United States should foster technology hubs and cooperation with Pacific allies. Furthermore, the United States should work on expanding existing coalitions to foster cooperation amongst European and Asian allies, for example expanding the Quad (Australia, Japan, India and the United States) to include South Korea, France and New Zealand.

Jennifer Lind and Daryl G. Press, "Five Futures for a Troubled Alliance," KIDA (September 1, 2021), http://www.kida.re.kr/frt/board/frtNormalBoardDetail.do?sidx=707&idx=2600&depth=3&searchCondition=&searchKeyword=&pageIndex=1&lang=en

In this journal article, the authors explore different options for the U.S.-South Korean alliance in response to North Korea's development of nuclear weapons and China's rising power in the region. They find that three options—expanding the alliance by giving more power to U.S. bases in South Korea and including South Korea in other important alliances, such as the Quad; removing U.S. forces during peacetime; and completely dissolving the alliance as insufficient in addressing these threats. In their analysis a fourth option, allowing South Korea to develop its own nuclear weapons capability with the cooperation of the United States, is most favorable, despite aversion in both the United States and South Korea. Allowing South Korea to develop its own nuclear weapons would assert South Korean independence and strength in the region while decreasing reliance on the United States for nuclear protection.

Sugio Takahashi, "Strategic Stability and the Impact of China's Modernizing Strategic Strike Forces," in China's Strategic Arsenal: Worldview, Doctrine, and Systems, ed. James M. Smith and Paul J. Bolt (Washington, D.C.: Georgetown University Press, 2021), 63–92. https://doi.org/10.2307/j.ctv1htpdvw.8

The author examines how recent developments in the Chinese conventional and nuclear arsenal could affect strategic stability in the Pacific. Chief among the problems is China's precision strike conventional weapons. Chinese precision strike conventional weapons could degrade U.S. bases in the Pacific and interfere with U.S. ability to aid allies. The U.S. lacks options for degrading Chinese bases for a similar, significant period of time, because of their proximity to resources on mainland China. Furthermore, China is expanding its number of MIRVed intercontinental ballistic missiles (ICBMs), which could hold increasing numbers of U.S. ICBMs at risk. This author is in favor of the United States deploying tactical nuclear weapons in the Pacific theatre to deter the Chinese from attacking U.S. bases, because nuclear weapons pose a larger destructive threat to Chinese bases.

Thomas G. Mahnken, "Selective Disclosure: How to Inject Strategy into U.S. Capability Development," War on the Rocks, January 27, 2021, https://warontherocks.com/2021/01/selective-disclosure-how-to-inject-strategy-into-u-s-capability-development/

The author discusses how to use the disclosure of new technologies to shape competition with great power adversaries and lays out a frame work for doing so. He advocates for establishing an office to determine whether and how technologies should be revealed. In deciding how and when to reveal capabilities, the United States should consider how easily an adversary can mount a response. Furthermore, the United States could choose to reveal particularly costly technologies, such as autonomy, hypersonic missiles, or directed energy, to impose costs. Finally, the United States could reveal even capabilities that are no longer under active development for the adversary to pursue as "dead ends" for time and resources.

Recent CGSR Workshops on Related Topics:

- Net Assessment and 21st Century Security Competition, June 2021
- De-Escalation and War Termination in Multi-Domain Regional Wars, May 2021
- Nuclear Risk Reduction in an Era of Major Power Rivalry, February 2020
- Winning Conventional Regional Wars Against Nuclear-Armed Adversaries, November 2019
- The Demise of the INF Treaty and Indo-Pacific Security, July 2019
- 5th Annual Strategic Deterrence Workshop, Multi-Domain Strategic Competition: Rewards and Risks, November 2018
- Space in the 21st Century Conflict: Calibrating Risks, Tailoring Strategies, January 2018
- Strengthening Deterrence for 21st Century Strategic Conflicts and Competition: Accelerating Adaptation and Integration, November 2017
- U.S. Extended Deterrence in Europe and in the Asia-Pacific: Similarities, Differences, and Interdependencies, November 2017
- Emerging Challenges in the China-U.S. Strategic Military Relationship, March 2017

All Workshop Reports are Available at: https://cgsr.llnl.gov/workshops

Center for Global Security Research
Lawrence Livermore National Laboratory
P.O. Box 808, L-189 Livermore, California 94551
https://CGSR.llnl.gov

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory
under Contract DE-AC52-07NA27344. LLNL-TR-827082